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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,205	09/24/2003	Sarah E. Kim	ITL 1040US (P14807)	2630
21906	7590	11/17/2006	EXAMINER	
TROP PRUNER & HU, PC 1616 S. VOSS ROAD, SUITE 750 HOUSTON, TX 77057-2631			ISAAC, STANETTA D	
			ART UNIT	PAPER NUMBER
			2812	

DATE MAILED: 11/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/669,205

Applicant(s)

KIM ET AL.

Examiner

Stanetta D. Isaac

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 14,16 and 17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14,16 and 17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

This Office Action is in response to the Reply filed on 11/03/06. Currently, claims 14, 16 and 17 are pending.

#### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The rejection of claim 14 under 35 U.S.C. 102(e) as being anticipated by Arik et al., US Patent 6,864,571 has been maintained for reasons of record.

Arik discloses the semiconductor method as claimed. See figures 1-8, and corresponding text, where Arik teaches, pertaining to claim 14, a method comprising: forming a trench **122** in an integrated circuit substrate **100** (figure 5; col. 8, lines 35-43); lining the trench with a catalyst material **124** to remove gases from a circulating fluid (figure 5; col. 7, lines 46-67; col. 8, lines 1-5, circulating fluid and catalyst involvement with later formed channels; col. 8, lines 45-51, lining of the groove); forming channels **126** that align with said trench to allow fluid circulation completely across said substrate from one side of said substrate to the other and through said trench (figure 5; col. 8, lines 52-59; col. 9, lines 20-33, *Note*: the Examiner takes the position that grooves are formed on both the top and bottom of the combined substrates **102** and **104**. In addition, the Examiner takes the position that the channels are formed laterally across the

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substrates); and protecting said catalyst when forming said channels (figure 5; col. 8, lines 45-51, the resist provides protection of the catalyst deposition).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The rejection of claims 16 and 17 under 35 U.S.C. 103(a) as being unpatentable over Arik et al., US Patent 6,864,571 has been maintained for reasons of record.

Arik discloses the semiconductor method substantially as claimed. See preceding rejection of claim 14 under 35 U.S.C. 102(e).

However, Arik fails to show, pertaining to claims 16 and 17, depositing platinum or lead as catalyst within the trench.

Arik teaches that a catalyst coating is deposited within the groove.

It would have been obvious to one of ordinary skill in the art to incorporate, depositing platinum or lead as a catalyst within the trench, in the method of Arik, pertaining to claims 16 and 17, according to the teachings of Arik, with the motivation that, both platinum and lead chemically can be used as catalyst materials conventionally known in the art.

### ***Response to Arguments***

Applicant's arguments filed 11/03/06 have been fully considered but they are not persuasive.

Applicant raises the clear issue as to whether Arik suggests that the catalyst material removes gases from the circulating fluid, the trench extends completely across the wafer, and protecting the catalyst when forming the channels.

The Examiner takes the position that Arik does suggest that the catalyst material removes gases from the circulating fluid, the trench extends completely across the wafer, and protecting the catalyst when forming the channels. Specifically, Arik shows, in figure 5, a cross-section of one of the microchannels where the fluid vapor **130** (dark shaded area) is condensed **132** (dark droplets) by the catalyst coating (the implied removal of gases from a vapor to liquid form) (col. 7, lines 46-67; col. 8, lines 1-5). In addition, Ark states that the grooves can be formed on both the top and bottom of the combined substrates **102** and **104** (figure 5; col. 8, lines 52-59; col. 9, lines 20-33). Also, Arik teachings imply that the grooves would have be formed across either wafer from side to side, since the fluid flows through the channels formed within the grooves. Finally, Arik states that the photo resist provides protection of the catalyst film while the channels are being formed (figure 5; col. 8, lines 45-51).

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

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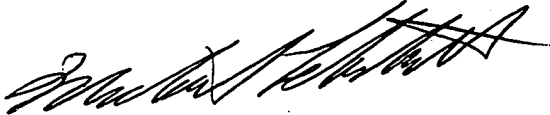
MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stanetta D. Isaac whose telephone number is 571-272-1671. The examiner can normally be reached on Monday-Friday 9:30am -6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on 571-272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Stanetta Isaac  
Patent Examiner  
November 12, 2006

  
MICHAEL LEBENTRITT  
SUPERVISORY PATENT EXAMINER